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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,829	09/03/2003	Alvin Stanley Cullick	5460-01101	4127

7590 09/29/2008

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EXAMINER	
LUU, CUONG V	
ART UNIT	**PAPER NUMBER**
2128	

MAIL DATE	DELIVERY MODE
09/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/653,829	CULLICK ET AL.	
	Examiner	Art Unit	
	CUONG V. LUU	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,12,13,15-21,23-31,42 and 44-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7, 9-10,12,13,15-21,23-31,42,44-46 and 48* is/are rejected.

7)☒ Claim(s) *8 and 47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1, 3-10, 12-13, 15-21, 23-31, 42, and 44-48 are pending. Claims 1, 3-10, 12-13, 15-21, 23-31, 42, and 44-48 have been examined. Claims 8 and 47 have been objected. Claims 1, 3-7, 9-10, 12-13, 15-21, 23-31, 42, and 44-46, and 48 have been rejected.

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-10, 12-13, 15-21, 23-31, 42, and 44-48 have been considered but are moot in view of the new ground(s) of rejection under U.S.C. 103(a).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 and 15-16 are rejected under 35 U.S.C. 112, first paragraph.

2. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "selecting a first geocellular reservoir model from a collection of geocellular reservoir models", does not reasonably provide enablement for "based on a first subset of the instantiated values". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

3. Claims 15-16 inherit the defects of claim 13.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-18 are rejected under paragraph of 35 U.S.C. 112.

4. Regarding claim 17, the word "automatically" in several limitations in this claim renders the claim indefinite because it is unclear whether the functions in the limitations are performed by said processor without user's input such as clicking on a button of a GUI to tell the processor to perform respective function or whether the functions in the limitations are performed by said processor after user's input such as clicking on a button of a GUI to tell the processor to perform respective function. See MPEP § 2173.05(d).

5. Claim 18 inherits the defects of claim 17.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-7, 9-10, 12, 42, 44-45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landmark Graphics Corporation (TERAS Evaluation Module User Guide) submitted by the Applicant in IDS, in view of Netemeyer et al. (U.S. Pub. 2002/0169785 A1) and Ortoleva (U.S. Pub. 2002/0013687 A1).

6. As per claim 1, Landmark teaches a method comprising:

assembling a set of models that represent components of a value chain, wherein each of the models of said set includes one or more variables, where each of said one or more variables is defined on a corresponding range (p. 3, Overview section);

selecting values of the variables in their respective ranges to create instantiated models (p. 4, Processing Data Using Economic Simulations section);

assembling the instantiated models into a workflow (p. 4, paragraph 1. Landmark teaches of entering data and build models in the TERAS tool for simulation is interpreted as assembling the instantiated models into a workflow);

executing one or more simulation engines on the workflow to generate data output (p. 3, Overview section).

storing the selected values of the variables and the data output from the one or more simulation engines to a memory (p. 4, paragraph 1 and Analyzing Output with Reports and Graph section, 1st paragraph of this section);

but does not teach at least one of the models of said set of models is a geocellular reservoir model nor at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics, or

receiving user input selecting one or more simulation engines corresponding to a value chain.

Netemeyer teaches at least one of the models of said set of models is a geocellular reservoir model (p. 3 paragraphs 0037. This paragraph describes a method of modeling reservoir by dividing it into volumetric cells which is geocellular modeling) and at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics (p. 1 paragraphs 0002, 0005).

Ortoleva teaches that the software FDM in the patent application "can simultaneously run multiple simulators" from a set of simulators (paragraph 0355). This teaching suggests that FDM can run one or simultaneously more simulators. As a result, it would be obvious to one of ordinary skill in the art that a user's inputs are required to select one or more simulators for running simulation(s). Therefore, this teaching suggests the limitation receiving user input selecting one or more simulation engines corresponding to a value chain.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landmark, Ortoleva, and Netemeyer. Netemeyer's and Ortoleva's teachings would have

provided been useful in simulating a reservoir system that extends the discretized reservoir simulation model beyond reservoir to include nodes and connection for modeling fluid flow in the well tubulars and surface production and gathering lines, separators and pipelines (Netemeyer, p. 2 paragraph 0025) and incorporated a wide variety of processes as required to predict a complete set of reservoir state variable (Ortoleva, paragraph 0355).

7. As per claim 3, Landmark teaches repeating (b), (c) and (d) (p. 5, Options for Processing Data. Landmark teaches running evaluation, including number of iterations indicates the repeat of (b), (c) and (d)).

8. As per claim 4, Landmark teaches the method of claim 3, wherein said repeating covers all possible combinations of values of the variables in their respective ranges (p. 4, Processing Data Using Economic Simulations section. Landmark teaches using Monte Carlo simulation using probability distributions providing a range of values for modeling complex parameters. This teaching reads on the limitation recited in this claim).

9. As per claim 5, Landmark teaches the method of claim 3, wherein said repeating achieves a sensitivity analysis by scanning each variable through the corresponding range, one at a time, while maintaining all other variables at nominal values (the discussion in claim 4 inherit this analysis since simulations cover all combination of ranges which include scanning each variable through the corresponding range, one at a time, while maintaining all other variables at nominal values).

10. As per claim 6, Landmark teaches the method of claim 3, wherein said repeating uses an experimental design algorithm to generate combinations of variable values in each iteration of said repeating of (b), (c) and (d) (the Monte Carlo simulation discussed in claim 4 inherit this limitation).

11. As per claim 7, Landmark teaches said selecting of values of the variables includes computing quantiles of one or more user-specified probability distributions (p. 47, Viewing the Statistical Summary Time Series Graph section, the 1st paragraph of this section. Landmark teaches graphs showing percentiles. This implies computing quantiles of one or more user-specified probability distributions).

12. As per claim 9, Landmark teaches said selecting of values of the variables includes choosing a value in a user-specified quantile range [Q_A, Q_B] based on a probability distribution specified by a user for a first one of the variables, wherein A and B are integers between zero and 100 inclusive (p. 189, the Background on Sampled Values section. Landmark teaches using triangular probability distribution inherit these limitations as admitted by the applicants, p. 8, lines 3-13. In a probability function, values are normalized to numbers between 0 and 1 inclusive; nevertheless, to represent in percentile as discussed in claim 7, they can be values between 0 and 100 inclusive).

13. As per claim 10, these limitations have already been discussed in claim 1. They are, therefore, rejected for the same reasons.

14. As per claim 12, these limitations have already been discussed in claim 3. They are, therefore, rejected for the same reasons.

15. As per claim 42, these limitations have already been discussed in claim 1. They are, therefore, rejected for the same reasons.

16. As per claim 44, these limitations have already been discussed in claim 3. They are, therefore, rejected for the same reasons.

17. As per claim 45, Ortoleva teaches executing a reservoir model-scaling engine to scale one or more geocellular reservoir models of said set of models to a lower resolution (p. 27, paragraph 0427).

18. As per claim 46, Landmark teaches executing a schedule resolver program, which generates instantiated schedules based on a first subset of the set of models and a first subset of the instantiated values (p. 155, Building a Production Schedule section, the first 2 paragraphs).

Claims 13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landmark Graphics Corporation in view of Netemeyer.

19. As per claim 13, Landmark teaches a computer-implemented method comprising:

computing an instantiated value of each random variable in a set of random variables (p. 3, Overview section);

selecting a first reservoir model from a collection of reservoir models based on a first subset of the instantiated values (pp. 3-4, Overview section and p. 151 section Building the Reservoir Model. In these sections, Landmark teaches building reservoir models based on conditions, values, of each model and then process a reservoir model. It would have been obvious to one of ordinary skill of the art that a reservoir model would have been selected and processed from a collection of reservoir models based on desired conditions/values of that reservoir model to evaluate affects of changes in one or more variables (p. 65 section Data Needed for Your Evaluation 3rd bullet));

resolving uncertain dates for events in one or more schedules using a second subset of the instantiated values in order to determine resolved event dates (p.147 Building Delays section paragraph 1. In this paragraph Landmark teaches uncertainty in the completion of and payment for a facility. This is regarded as uncertainty of schedule for completion and payment for a facility is resolved wit a second instantiated values which are delays);

executing a simulation engine on an input data set including the first reservoir model and the resolved events dates (p. 3, Overview section); and

capturing data generated by the simulation engine in response to said execution to a storage medium memory (p. 4, paragraph 1 and Analyzing Output with Reports and Graph section, 1st paragraph of this section);

However, Landmark does not teach models being geocellular models and the simulation engine including one or more physics-based flow simulators for simulating reservoirs, wells and surface-pipeline hydraulics.

Netemeyer teaches at least one of the models of said set of models is a geocellular reservoir model (p. 3 paragraphs 0037. This paragraph describes a method of modeling reservoir by dividing it into volumetric cells which is geocellular modeling) and at least one of

the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics (p. 1 paragraphs 0002, 0005).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landmark and Netemeyer. Netemeyer' s teachings would have provided been useful in simulating a reservoir system that extends the discretized reservoir simulation model beyond reservoir to include nodes and connection for modeling fluid flow in the well tubulars and surface production and gathering lines, separators and pipelines (p. 2 paragraph 0025).

20. As per claim 15, Landmark teaches the simulation engine including an economic computation engine (p. 3, Overview section, 1st paragraph of the section).

21. As per claim 16, Landmark teaches the first model is a reservoir model (p. 18, Reservoir Level Tabs section, the 1st paragraph of this section).

Claims 17-21, 23-25, 27-30, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landmark Graphics Corporation in view of Netemeyer et al. (U.S. Pub. 2002/0169785 A1) and Jalali et al. (U.S. Pub. 2002/0177955 A1).

22. As per claim 17, Landmark teaches a system comprising:

a memory storing program instructions and data (p. 6, Single User and Multi-user Modes section);

a processor configured to read the program instructions from the memory, wherein the program instructions are executable by the processor (p. 6, Single User and Multi-user Modes section), the processor is operable to:

assemble a set of models, wherein each of the models of said set includes one or more variables, where each of said one or more variables is defined on a corresponding range (p. 3, Overview section);

automatically select values of the variables in their respective ranges to create instantiated models (p. 4, Processing Data Using Economic Simulations section);

automatically assemble the instantiated models into a workflow (p. 4, paragraph 1. Landmark teaches of entering data and build models in the TERAS tool for simulation is interpreted as assembling the instantiated models into a workflow); and

automatically execute one or more simulation engines on the workflow (p. 3, Overview section);

but does not teach

at least one of the models of said set of models is a geocellular reservoir model;

at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics; and

automatically execute a well-perforator program on one or more well plans included in the instantiated models in order to determine perforation locations for the one or more well plans.

Netemeyer teaches:

at least one of the models of said set of models is a geocellular reservoir model (p. 3 paragraphs 0037); and

at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics (p. 1 paragraphs 0002, 0005).

Jalali teaches automatically execute a well-perforator program on one or more well plans included in the instantiated models in order to determine perforation locations for the one or more well plans (p. 9 paragraphs 0107-0108).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landmark, Jalali, and Netemeyer. Netemeyer's and Jalali's teachings would have been useful in simulating a reservoir system that extends the discretized reservoir simulation model beyond reservoir to include nodes and connection for modeling fluid flow in the well tubulars and surface production and gathering lines, separators and pipelines (Netemeyer, p. 2 paragraph 0025) and determined optimum segmentation for the well (Ortoleva, p. 9 paragraph 0107).

23. As per claim 18, these limitations have already been discussed in claim 1. They are, therefore, rejected for the same reasons.

24. As per claim 19, these limitations have already been discussed in claim 17. They are, therefore, rejected for the same reasons.

25. As per claim 20, these limitations have already been discussed in claim 18. They are, therefore, rejected for the same reasons.

26. As per claim 21, these limitations have already been discussed in claims 1 and 3. They are, therefore, rejected for the same reasons.

27. As per claim 23, Landmark teaches said capturing comprising storing the instantiated planning variables and simulation output data onto the storage medium in a relational database format (p. 6, Single User and Multi-user Modes. Landmark teaches database files being stored in an Oracle database implies simulation output data onto the storage medium in a relational database format).

28. As per claim 24, Landmark teaches said generating instantiations of the planning variables includes:

calculating a set of random numbers (p. 55, Processing Data section, 1st paragraph);

calculating quantile values using the random numbers and user-defined probability distributions associated with the planning variables (this limitation has already been discussed in claim 7).

29. As per claim 25, these limitations have already been discussed in claim 15. They are, therefore, rejected for the same reasons.

30. As per claim 27, Landmark teaches said performing setup operations including receiving user input specifying execution qualifying data corresponding to the case (p. 5, Options for Processing Data section. Landmark teaches inputting number of iterations to run reads onto this limitation).

31. As per claim 28, these limitations have already been discussed in claim 27. They are, therefore, rejected for the same reasons.

32. As per claim 29, Landmark teaches the execution qualifying data includes a set of attainable values for each planning variable (p. 3, Entering Data section).

33. As per claim 30, Landmark teaches the execution qualifying data include data characterizing probability distributions for one or more of the planning variables (p. 4, Processing Data Using Economic Simulation section).

34. As per claim 48, Landmark teaches a computer-implemented method comprising:

receiving user input characterizing a set of planning variables associated with a set of models (p. 3, Overview section);

generating instantiated values of the planning variables (p. 3, Overview section);

assembling a first input data set using a first subset of the instantiated values and a first subset of the set of models, and assembling a second input data set using a second subset of the instantiated values and a second subset of the set of models p. 4, paragraph 1. Landmark teaches of entering data and build models in the TERAS tool for simulation is interpreted as assembling the instantiated models into a workflow. In addition, the discussions in claim 31 indicate the building or 1st and 2nd models);

determining instantiated schedules using a third subset of the instantiated values and a third subset of the models, and appending the instantiated schedules to the first input data set and the second input data set (the discussions in claim 46 teaches determining instantiated schedules using a third subset of the instantiated values and a third subset of

the models. In addition, on p. 3, Entering Data section, Landmark teaches entering historical information to build a model. As a result, the instantiated schedules could be entered into the first and second input data sets as recited in this limitation);

generating flow data for oil, gas and water and appending the flow data to the second input data set (p. 151, Example: Building a Typical Reservoir Model, paragraph 1 of the section; p. 198, Cross plot graphs section, Table of Category and Selection. The cited paragraph and table are regarded generating flow data for oil. In addition, the 1st paragraph of Entering Data section on page 3 cites engineering data implying that these generated data could be entered or appended to the second input data set for the next simulation);

executing an economic computation engine on the second input data set to generate economic output data (this limitation has already been discussed in claim 15);

storing the instantiated values of the planning variables, the flow data and the economic output data to a storage medium in a relational database format (p. 4 paragraph 1, section Analyzing Output with Report and Graph 1st paragraph of this section, and p. 6 last paragraph); and

repeating (b), (c), (d), (e), (f), (g) and (h) until a termination condition is achieved (p. 5, Options for Processing Data. Landmark teaches running evaluation, including number of iterations indicates the repeat of (b), (c) and (d). This section is regarded as repeating of steps (b), (c), (e), (f), (g) and (h) until a termination condition is achieved).

Landmark does not teach:

executing a well-perforator program to determine well perforation locations for wells in the first input data set, and appending the well perforation locations to the first input data set;

executing one or more physics-based flow simulators, wherein the one or more physics-based flow simulators are configured to simulate reservoirs, wells and surface-pipeline hydraulics; and

at least one of the models of said set of models is a geocellular reservoir model.

Jalali teaches limitation executing a well-perforator program to determine well perforation locations for wells in the first input data set, and appending the well perforation locations to the first input data set (p. 9 paragraphs 0107-0108).

Netemeyer teaches at least one of the models of said set of models is a geocellular reservoir model (p. 3 paragraphs 0037) and at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics (p. 1 paragraphs 0002, 0005).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landmark, Jalali, and Netemeyer. Netemeyer's and Jalali's teachings would have been useful in simulating a reservoir system that extends the discretized reservoir simulation model beyond reservoir to include nodes and connection for modeling fluid flow in the well tubulars and surface production and gathering lines, separators and pipelines (Netemeyer, p. 2 paragraph 0025) and determined optimum segmentation for the well (Ortoleva, p. 9 paragraph 0107).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landmark in view of Egyed (A Scenario-Driven Approach to Traceability, 0-7695-1050-7/01, IEEE 2001) and Netemeyer et al.

35. As per claim 31, Landmark teaches a method comprising:

assembling a first case comprising a first set of models and planning variables for components of a value chain, in response to first user input, wherein the first set of models and planning variables (p. 3 section Overview);

assembling a second case by receiving second user input specifying modifications to the first set of models and planning variables and modifying the first set of models and planning variables according to said second user input (p. 4 section Processing Data Using Economic Simulation, p. 5 section Command Language, and P. 94 section Monte Carlo Function. In these sections Landmark teaches generating a second case by receiving second user input specifying modifications to the first set of models and planning variables and modifying the first set of models and planning variables according to said second user input using Monte Carlo Function; for example, on page 94, a second user inputs which are Median and Std. Dev values are entered for the *epsilon* parameter which is a planning variable for a set of models);

storing the first case, the second case and the modifications to the first set of models and planning variables in a memory medium (p. 4 section Processing Data Using Economic Simulation, p. 5 section Command Language, and P. 94 section Monte Carlo Function. These sections indicate that the first case, the second case, and modifications such as Median and Std. Dev values are stored in a memory medium);

conditionally displaying the modifications to the first set of models and planning variables in response to a user request (p. 52 section Creating a New Evaluation. In this section Landmark teaches saved data can be recalled and displayed for modification. This teaching suggests that modifications to the first set of models and planning variables can be conditionally displayed in response to a user request).

Landmark does not teach:

the first set of models including at least one geocellular model; and

displaying an indication of the first case, the second case, and a parent child relationship between the first case and the second case.

Netemeyer teaches at least one of the models of said set of models is a geocellular reservoir model (p. 3 paragraphs 0037. This paragraph describes a method of modeling reservoir by dividing it into volumetric cells which is geocellular modeling) and at least one of the one or more simulations engines including one or more physics-based reservoir flow simulators for simulating reservoir, wells and surface-pipeline hydraulics (p. 1 paragraphs 0002, 0005).

Egyed teaches displaying an indication of the first case, the second case, and a parent child relationship between the first case and the second case (p. 126 col. 2 last paragraph, p. 127 col. 1 1st paragraph, and Fig. 3).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landmark, Netemeyer, and Egyed. Egyed's and Netemeyer's teachings would have been useful in simulating a reservoir system that extends the discretized reservoir simulation model beyond reservoir to include nodes and connection for modeling fluid flow in the well tubulars and surface production and gathering lines, separators and pipelines (Netemeyer, p. 2 paragraph 0025) and generated traceability information based on scenarios that are executed and then used for establishing traces between model elements or variables (Egyed, p. 123 col. 2 2nd paragraph from bottom).

Allowable Subject Matter

Claims 8 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

36. As per claim 8, Landmark, Ortoleva, and Netemeyer do not teach selecting of values of the variables being based on a Latin Hypercube sampling of the variables as recited by the claimed invention.

37. As per claim 47, Landmark, Ortoleva, and Netemeyer do not teach executing a well perforator program based on a second subset of the set of models and a second subset of the instantiated values as recited by the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Cuong V Luu/

Examiner, Art Unit 2128

/Alexander J Kosowski/

Primary Examiner, Art Unit 2128